AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently amended) An isolated nucleic acid ~~sequence~~ coding for a polypeptide having acyl-CoA:lysophospholipid-acyltransferase activity, wherein the isolated nucleic acid comprises a nucleotide sequence having at least 80% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide having at least 80% identity to the polypeptide sequence of SEQ ID NO: 2, wherein the acyl-CoA:lysophospholipid acyltransferase encoded by said nucleic acid ~~sequence~~ specifically converts C_{16}, C_{18}-, C_{20}- or C_{22}-fatty acids having at least one double bond in the fatty acid molecule.

2. (Currently amended) The isolated nucleic acid ~~sequence according to~~ of claim 1, ~~selected from the group consisting of:~~

~~a)~~ ~~a nucleic acid sequence having~~ wherein the nucleic acid comprises the nucleotide sequence ~~depicted in~~ of SEQ ID NO: 1, ~~SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7,~~

~~b)~~ ~~nucleic acid sequences which can be derived from the coding sequence comprised in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7 as a result of the degenerated genetic code,~~

~~c)~~ ~~derivatives of the nucleic acid sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7 which code for~~ or encodes a polypeptide[[s]] ~~having~~ comprising the amino acid sequence ~~depicted in~~ of SEQ ID NO: 2, ~~SEQ ID NO: 4, SEQ ID NO: 6 or SEQ ID NO: 8 and are at least 40% homologous at the amino acid level to SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or SEQ ID NO: 8 and have an acyl-CoA:lysophospholipid acyltransferase activity~~.

3. (Currently amended) The isolated nucleic acid ~~sequence according to~~ of claim 1, which is derived from a eukaryote.

4. (Withdrawn, currently amended) An amino acid sequence encoded by [[an]] the isolated nucleic acid ~~sequence according to~~ of claim 1.

5. (Currently amended) A gene construct comprising ~~an~~ the isolated nucleic acid ~~according to~~ of claim 1, wherein said nucleic acid is functionally linked to one or more regulatory signals.

6. (Currently amended) The gene construct ~~according to~~ of claim 5, ~~wherein the nucleic acid construct comprises~~ further comprising additional biosynthetic genes of the fatty acid or lipid metabolism, selected from the group consisting of acyl-CoA dehydrogenase(s), acyl-ACP[= acyl carrier protein] desaturase(s), acyl-ACP thioesterase(s), fatty acid acyltransferase(s), fatty acid synthase(s), fatty acid hydroxylase(s), acetyl-coenzyme A carboxylase(s), acyl-coenzyme A oxidase(s), fatty acid desaturase(s), fatty acid acetylenases, lipoxygenases, triacylglycerol lipases, allenoxide synthases, hydroperoxide lyases ~~or~~ and fatty acid elongase(s).

7. (Currently amended) The gene construct ~~according to~~ of claim 5, ~~wherein the nucleic acid construct comprises~~ further comprising additional biosynthetic genes of the fatty acid or lipid metabolism, selected from the group consisting of Δ4-desaturase, Δ5-desaturase, Δ6-desaturase, Δ8-desaturase, Δ9-desaturase, Δ12-desaturase, Δ5-elongase, Δ6-elongase ~~or~~ and Δ9-elongase.

8. (Currently amended) A vector comprising ~~a~~ the nucleic acid ~~according to~~ of claim 1, or a gene construct comprising said nucleic acid functionally linked to one or more regulatory signals.

9. (Withdrawn, currently amended) A transgenic nonhuman organism comprising at least one nucleic acid ~~according to~~ of claim 1, a gene construct comprising said nucleic acid functionally linked to one or more regulatory signals, or a vector comprising said nucleic acid or said gene construct.

10. (Withdrawn, currently amended) The transgenic nonhuman organism ~~according to~~ of claim 9, which organism is a microorganism, a nonhuman animal or a plant.

11. (Withdrawn, currently amended) The transgenic nonhuman organism ~~according to~~ of claim 9, which organism is a plant.

12. (Withdrawn, currently amended) A process for producing polyunsaturated fatty acids in an organism, wherein said process comprises ~~the following steps~~:

a) introducing into ~~the~~ an organism at least one nucleic acid ~~sequence having the sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID~~

~~NO: 7, which sequence codes~~ coding for a polypeptide having ~~an~~ acyl-CoA:lysophospholipid-acyltransferase activity~~; or~~

~~b) introducing into said organism at least one nucleic acid sequence which can be derived, as a result of the degenerated genetic code, from the coding sequence comprised in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7, or~~

~~c) introducing into said organism at least one derivative of the nucleic acid sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7, which code for polypeptides having the amino acid sequence depicted in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or SEQ ID NO: 8 and which are at least 40% homologous at the amino acid level to SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or SEQ ID NO: 8 and have an equivalent acyl-CoA:lysophospholipid-acyltransferase activity~~, and

d) culturing and harvesting said organism,

wherein the nucleic acid comprises a nucleotide sequence selected from the group consisting of:

i) the nucleotide sequence of SEQ ID NO: 1,

ii) a nucleotide sequence having at least 80% identity to the nucleotide sequence of SEQ ID NO: 1,

iii) a nucleotide sequence encodes the polypeptide sequence of SEQ ID NO: 2, and

iv) a nucleotide sequence encodes a polypeptide having at least 80% identity to the polypeptide sequence of SEQ ID NO: 2.

13. (Withdrawn, currently amended) [[A]] The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein~~, in addition to the nucleic acid sequences mentioned under (a) to (c),~~ the process further comprises introducting additional nucleic acid sequences ~~have been introduced~~ into said organism, ~~which~~ wherein the additional nucleic acid sequences code for polypeptides of the fatty acid or lipid metabolism[[,]] selected from the group consisting of acyl-CoA-dehydrogenase(s), acyl-ACP[= acyl carrier protein] desaturase(s), acyl-ACP thioesterase(s), fatty acid acyltransferase(s), fatty acid synthase(s), fatty acid hydroxylase(s),

acetyl-coenzyme A carboxylase(s), acyl-coenzyme A oxidase(s), fatty acid desaturase(s), fatty acid acetylenases, lipoxygenases, triacylglycerol lipases, allenoxide synthases, hydroperoxide lyases ~~or~~ and fatty acid elongase(s).

14. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein~~, in addition to the nucleic acid sequences mentioned under (a) to (c),~~ the process further comprises introducing additional nucleic acid sequences ~~have been introduced~~ into the organism, ~~which~~ wherein the additional nucleic acid sequences code for polypeptides selected from the group consisting of Δ4-desaturase, Δ5-desaturase, Δ6-desaturase, Δ8-desaturase, Δ9-desaturase, Δ12-desaturase, Δ5-elongase, Δ6-elongase ~~or~~ and Δ9-elongase activity.

15. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein C_{16}-, C_{18}-, C_{20}- or C_{22}-fatty acids are used as substrate of the acyl-CoA:lysophospholipid acyltransferases.

16. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein the polyunsaturated fatty acids are isolated from the organism in the form of an oil, lipid or a free fatty acid.

17. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein the polyunsaturated fatty acid produced in said process is a C_{18}-, C_{20}- or C_{22}-fatty acids having at least two double bonds in the molecule.

18. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein [[a]] the polyunsaturated fatty acid produced is ~~selected from the group consisting of~~ dihomo-γ-linolenic acid, arachidonic acid, eisosapentaenoic acid, docosapentaenoic acid ~~and~~ or docosahexaenoic acid ~~is produced in said process~~.

19. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein the organism is a microorganism, a nonhuman animal or a plant.

20. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 12, wherein the organism is a transgenic plant.

21. (Withdrawn, currently amended) The process ~~for producing polyunsaturated fatty acids according to~~ of claim 20, wherein the transgenic plant is an oil crop plant.

22. (Withdrawn, currently amended) An oil, a lipid or a fatty acid or a fraction thereof, prepared by the process ~~according to~~ of claim 12.

23. (Withdrawn, currently amended) An oil composition, a lipid composition or a fatty acid composition which comprises polyunsaturated fatty acids ~~prepared by a process according to~~ produced by the process of claim 12 and is derived from transgenic plants.

24. (Canceled)

25. (Withdrawn, currently amedned) A method of making feed, foodstuffs, cosmetics or pharmaceuticals comprising incorporating the polyunsaturated fatty acids ~~prepared according to~~ prouced by the process of claim 12, or an oil composition, a lipid composition, or a fatty acid composition comprising said polyunsaturated fatty acids that are derived from transgenic plants in said feed, foodstuffs, cosmetics or pharmaceuticals.

26-29. (Cancelled)

30. (New) The isolated nucleic acid of claim 1, wherein the nucleic acid comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide has at least 90% identity to the polypeptide sequence of SEQ ID NO: 2.

31. (New) The isolated nucleic acid of claim 1, wherein the nucleic acid comprises a nucleotide sequence having at least 95% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide has at least 95% identity to the polypeptide sequence of SEQ ID NO: 2.

32. (New) The process of claim 12, wherein the nucleic acid comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide having at least 90% identity to the polypeptide sequence of SEQ ID NO: 2.

33. (New) The process of claim 12, wherein the nucleic acid comprises a nucleotide sequence having at least 95% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide having at least 95% identity to the polypeptide sequence of SEQ ID NO: 2.